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Herb-based functional foods: From laboratories to the market

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Consumption of alternative herbal folk medicines has had a tremendous increase in the last decade. A number of medicinal plants contain secondary metabolites which have many biologically active compounds. They are used against hepatic fibrosis and heart ischemia-reperfusion and proved to have anti-oxidant, anti-thrombosis, anti-hypertension, anti-stress, anti-virus, anti-tumor, anti-ulcer, anti-diabetic, anti-aging and anti-inflammatory activities. Non-availability of quality planting materials, low germination, slow plant growth, disease and pest incidence are major obstacles in the cultivation of conventional medicinal plants. In Taiwan, many economically important medicinal plants and herbs are produced using various explant materials by tissue culture technique to meet the increasing demand for their medicinal properties. Rapid multiplication through *in vitro* tissue culture can be advantageous for the continuous supply throughout the year. We have developed and standardized efficient, simple and rapid tissue culture protocols of many medicinal plants; optimized the conditions in the greenhouse and successfully established the regenerated plantlets in the field for the large scale commercial production. Availability of tissue culture protocol is the first step towards the development of the genetic transformation system.

Biography

Hsin-Sheng Tsay has more than 47 years research experience in Biotechnology of diverse crop plants including medicinal herbs. He has worked with Professor Toshio Murashige, University of California, Riverside for his PhD on Tobacco Anther Culture. For the last 13 years, he has been working at the Chaoyang University of Technology; there he has served as Dean, College of Science and Engineering; Director and Chair Professor of Graduate Institute of Biotechnology. He has transferred more than 20 technologies pertaining to the functional foods for commercialization. He has published 265 research papers, has guided 23 PhDs and more than 100 Masters students. He is on Editorial Boards of several international journals.

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